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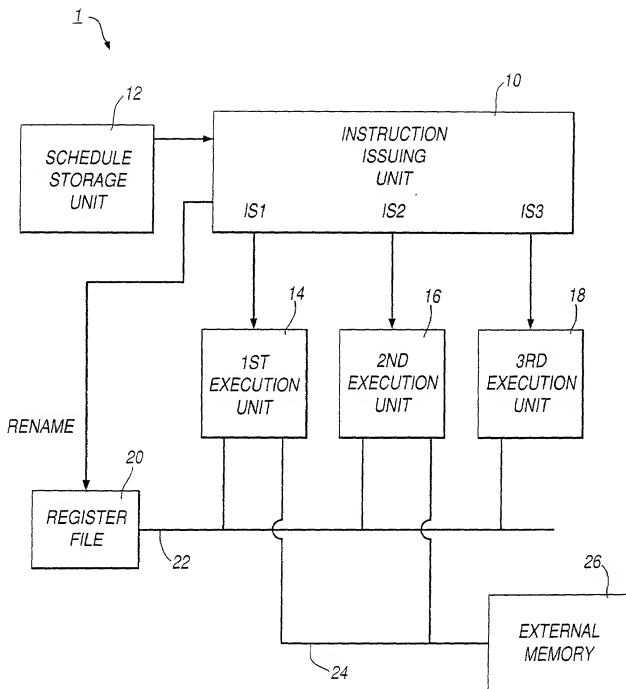


Fig.1

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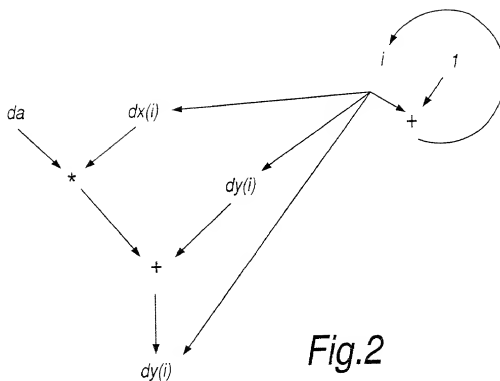


Fig. 2

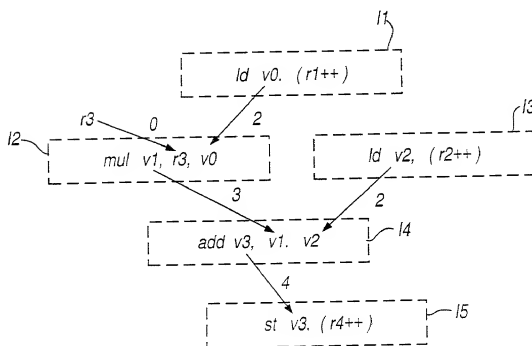


Fig. 3

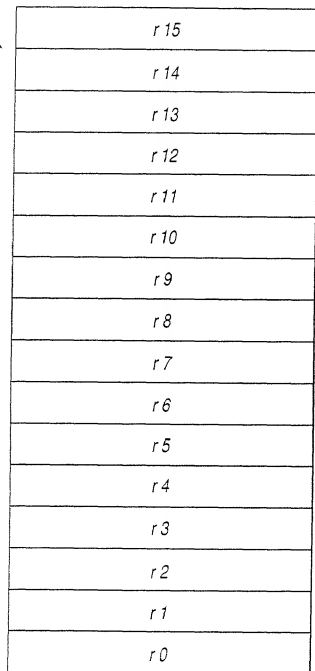
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Cycle	i=0	i=1	i=2	i=3	i=4	i=5
0	L1					
1						
2	M	L1				
3	L2					
4		M	L1			
5	A	L2				
6			M	L1		
7		A	L2			
8				M	L1	
9	S		A	L2		
10					M	L1
11		S		A	L2	
12						M
13			S		A	L2
14						
15				S		A
16						
17					S	
18						
19						S

Fig.4

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120R



<i>r 15</i>
<i>r 14</i>
<i>r 13</i>
<i>r 12</i>
<i>r 11</i>
<i>r 10</i>
<i>r 9</i>
<i>r 8</i>
<i>r 7</i>
<i>r 6</i>
<i>r 5</i>
<i>r 4</i>
<i>r 3</i>
<i>r 2</i>
<i>r 1</i>
<i>r 0</i>

OFFSET

Fig.5

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Iteration 0				Iteration 1			
Cycle	Offset	Instruction	v0	v1	v2	v3	
0	10	ld v0, (r1++)	s0►r10				v3
1	10		s0►r10				
2	9	mul v1, v0, r3	s1►r10	s2►r11			
3	9	ld v2, (r2++)		s2►r11	s0►r9		
4	8			s3►r11	s1►r9		
5	8	add v3, v1, v2		s3►r11	s2►r10		
6	7					s4►r12	
7	7					s5►r12	
8	6						s6►r13
9	6	st v3, (r4++)					s7►r13
10	5						s7►r13
11	5						s8►r13

Translation:

- l 1 ld v0, (r1++) → ld s0, (r1++)
- l 2 mul v1, v0, r3 → mul s2, s1, r3
- l 3 ld v2, (r2++) → ld s4, (r2++)
- l 4 add v3, v1, v2 → add s6, s3, s5
- l 5 st v3, (r4++) → st s8, (r4++)

Fig.6(A)

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Cycle	Offset	Iteration 2					Iteration 3				
		Instruction	v0	v1	v2	v3	Instruction	v0	v1	v2	v3
0	10										
1	10										
2	9										
3	9										
4	8	ld v0, (r1++)	s0 ▶ r8								
5	8		s0 ▶ r8								
6	7	mul v1, v0, r3	s1 ▶ r8	s2 ▶ r9			ld v0, (r1++)	s0 ▶ r7			
7	7	ld v2, (r2++)		s2 ▶ r9	s4 ▶ r11			s0 ▶ r7			
8	6			s3 ▶ r9	s5 ▶ r11		mul v1, v0, r3	s1 ▶ r7	s2 ▶ r8		
9	6	add v3, v1, v2		s3 ▶ r9	s5 ▶ r11	s6 ▶ r12	ld v2, (r2++)		s2 ▶ r8	s4 ▶ r10	
10	5					s7 ▶ r12			s3 ▶ r8	s5 ▶ r10	
11	5					s7 ▶ r12	add v3, v1, v2		s3 ▶ r8	s5 ▶ r10	s6 ▶ r11
12	4					s8 ▶ r12					s7 ▶ r11
13	4	st v3, (r4++)				s8 ▶ r12					s7 ▶ r11
14	3										s8 ▶ r11
15	3						st v3, (r4++)				s8 ▶ r11

Fig.6(B)

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Cycle	$i=0$	$i=1$	$i=2$	$i=3$	$i=4$	$i=5$
0	L1					
1						
2	M	L1				
3	L2					
4		M	L1			
5	A	L2				
6			M	L1		
7		A	L2			
8				M (1)	L1 (0)	
9	S		A (3)	L2 (2)		
10					M (5)	L1 (4)
11		S		A (7)	L2 (6)	
12						M (9)
13			S		A (11)	L2 (10)
14						
15				S		A (15)
16						
17					S	
18						
19						S

Fig.7

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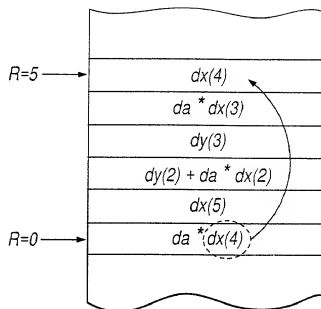


Fig.8

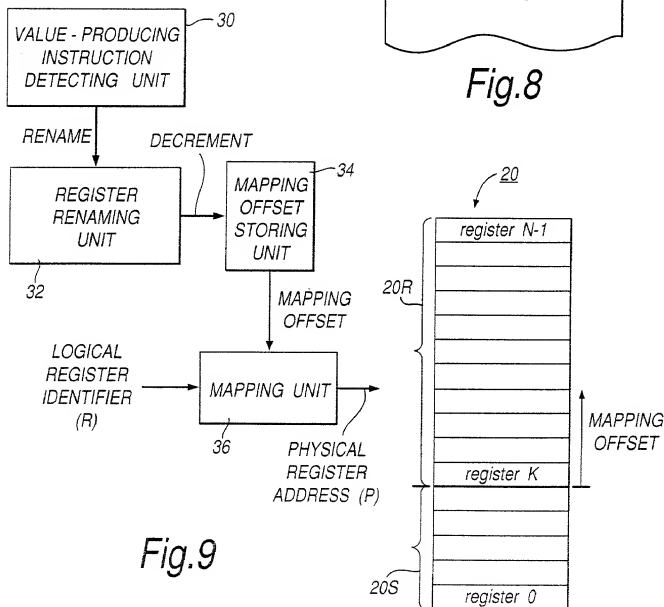


Fig.9

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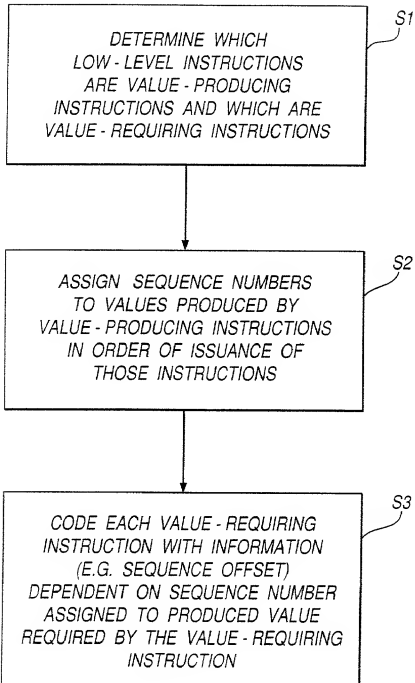


Fig.10

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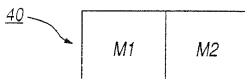


Fig.11

```

1:  int s = 0;
2:  for (i = 0; i < N; i++)
3:  {
4:      s = s + a[i];
5:      b[i] = s;
6:  }
7:  c = s;
    
```

Fig.12

$$S_I - S_R = q$$

$$S_W - S_E = t$$

$$S_W - S_R = v$$

circumference = pv

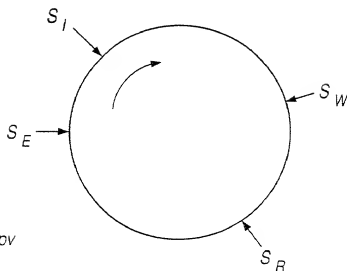


Fig.13

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